



TSIRCON CO LTD

MANUFACTURERS & TRADERS
OF BUILDING MATERIALS

Ημ. έκδοσης 12/2004

TSIRCO-LATEX S.B.

A polymer modifier additive for cementitious screeds and mortars

Product

Synthetic Rubber Latex Dispersion.

Composition

White emulsion of styrene butadiene synthetic polymer.

Purpose

To improve the properties of cementitious materials.

Usage

10% to 26% Volume/Weight on the weight of cement i.e. 5-13 litres of TSIRCO-LATEX S.B. per 50kg of cement.

Pack

4, 20 and 210 litres.

Advantages

TSIRCO-LATEX S.B. improves the adhesion properties of mortar and therefore thinner layers may be applied. It increases resistance to abrasion and resistance to chemical attack. Mortar is more workable leading to increased density, reduced permeability to water while strength is increased. It gives greater flexibility to mortar thus increasing resistance to cracking.



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Introduction

TSIRCO-LATEX S.B. is specifically formulated to be used as an admixture with cement mixtures. It improves the mechanical properties of concrete and mortars by providing a polymer lattice within the cementitious matrix. This leads to better mixing of the aggregates with the binder, thereby increasing resistance to abrasion. The use of TSIRCO-LATEX S.B. improves the adhesion of mortar to various substrates such as mature concrete. As a primer, TSIRCO-LATEX S.B. improves bonding. Cement slurry containing TSIRCO-LATEX S.B. is also a good bonding agent. When added to concrete and mortars, TSIRCO-LATEX S.B. increases their tensile strength by 20% to 50%, depending upon the dosage used. Workability of fresh concrete or mortar containing TSIRCO-LATEX S.B. increases allowing reduction of the water cement ratio. This leads to a stronger mix and the hardened material is less permeable to water.

Typical properties

Composition: A milky-white emulsion of styrene-butadiene.

Solids content: 44.5%.

Specific gravity: 1.01

pH: 10.5 approx.

Dosage

Depending on the intended use, the normal dosage of TSIRCO-LATEX S.B. should be in the range of 10% to 26% of the weight of cement used. The effect on setting and hardening will be insignificant at this range. If the dosage is increased, the cement will hydrate at a slower rate, and if used in thin screeds care must be taken for protection against premature drying.

Where to use

TSIRCO-LATEX S.B. has been developed to serve a wide range of applications for construction work as well as specialised uses such as an adhesive. Common applications include: Durable renders and screeds, floor repairs, crack sealings, tile bedding and for the construction of acid resistant floors in dairy plants, abattoirs e.t.c.



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How to use

TSIRCO-LATEX S.B. can be best added to concrete or mortar by diluting it first into the mixing water. The TSIRCO-LATEX S.B. water mixture should be in the ratio of 1:1 to 1:4. TSIRCO-LATEX S.B. is suitable for use with all Portland Cements as well as High Alumina Cements. To achieve good adhesion of screeds or coatings to the substrate, ensure that substrate is sound, clean and dust free. Use mechanical means to remove any kind of oil, grease or organic contamination. For application of slabs or screeds to existing concrete, surface must be rough. Smooth surfaces must be scabbled lightly before application of the fresh mix. Always moisten the substrate with water before placing the modified mortar or concrete. If the substrate is to be primed with a cement slurry incorporating TSIRCO-LATEX S.B., use a stiff brush or broom and work well into the surface, then place the systems which are to be bonded while the primer is still tacky.

Suggested guidelines for mortar compositions for various uses:

Application	Cement: Sand ratio	Tsirco-Latex S.B.: Water ratio
Paving patching/screeds	1:2 to 1:3	1:1 to 1:3
Levelling, jointing	1:1 to 1:3	1:1 to 1:3
Bonding, priming coats	1:1 to 1:2	1:1
Bedding tiles, kerbstones, etc.	1:2 to 1:3	1:2 to 1:3
Rendering	1:3 to 1:4	1:2 to 1:4
Grouts	1:1	1:2 to 1:3

For screeds and coatings requiring high flexibility values and increased resistance to abrasion and chemical contamination, you may increase the TSIRCO-LATEX S.B. to water ratio up to 2:1. Modified mortars and concretes with TSIRCO-LATEX S.B. give superior mechanical qualities over unmodified mixes. Mortars treated with TSIRCO-LATEX S.B. usually harden more slowly than normal mortar.

In very hot weather conditions, in order to avoid rapid drying out, after the mix has been applied, wet the surface with water as soon as the mortar has set. For outdoor cases drying out may be prevented by the application of a curing membrane.



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The table below shows the comparative results of a range of 1:3 mortars.

Typical properties of standard 1:3 mortar

TSIRCO-LATEX S.B. Content (%)	0	10	20
Zone 3 Sand	150kg	150kg	150kg
Ordinary Portland Cement	50kg	50kg	50kg
Tsirco-Latex S.B.	-	5L	10L
Water	25L	19.2L	15L
W/c ratio (1)	0.5	0.44	0.41
Wet density (kg/m ³)	2190	2180	2170
Air content (%)	6.0	7.0	7.5
Compressive strength (N/mm ²)			
at 3 days (2)	34.2	35.4	34.0
28 days (3)	44.5	46.5	45.5
Flexural strength (N/mm ²)			
at 3 days (2)	5.4	6.2	6.7
28 days (3)	7.5	9.1	11.1
Bond strength (N/mm ²)			
at 3 days (2)	0.1-0.2	0.5-0.7	0.7-0.9
28 days (3)	0.2-0.3	1.0-1.2	1.5-1.7